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| Range of product | Altivar Process ATV900 |
| Product or component type | Variable speed drive |
| Device application | Industrial application |
| Device short name | ATV930 |
| Variant | Standard version Without braking chopper |
| Product destination | Synchronous motors Asynchronous motors |
| Mounting mode | Wall mount |
| EMC filter | Integrated 492.13 ft (150 m) EN/IEC 61800-3 category C3 |
| IP degree of protection | IP00 IEC 61800-5-1 IP00 IEC 60529 IP21 IEC 61800-5-1 with kit VW3A9704 IP21 IEC 60529 with kit VW3A9704 |
| Type of cooling | Forced convection |
| Supply frequency | 50...60 Hz +/- 5 % |
| Phase | 3 phase |
| [Us] rated supply voltage | 380...480 V - 15...10 % |
| Motor power kW | 110 KW normal duty) 90 kW heavy duty) |
| Maximum Horse Power Rating | 150 Hp normal duty 125 hp heavy duty |
| Line current | 201 A 380 V normal duty) 165 A 480 V normal duty) 170 A 380 V heavy duty) 143 A 480 V heavy duty) |
| Prospective line I _{sc} | 50 kA |
| Apparent power | 121.8 KVA 480 V normal duty) 102.6 kVA 480 V heavy duty) |
| Continuous output current | 211 A 2.5 kHz normal duty 173 A 2.5 kHz heavy duty |
| Maximum transient current | 253 A 60 s normal duty) 259.5 A 60 s heavy duty) |
| Asynchronous motor control profile | Constant torque standard Optimized torque mode Variable torque standard |
| Synchronous motor control profile | Permanent magnet motor Synchronous reluctance motor |
| Speed drive output frequency | 0.1...599 Hz |
| Nominal switching frequency | 2.5 kHz |
| Switching frequency | 1...8 kHz adjustable 2.5...8 kHz with derating factor |
| Safety function | STO (safe torque off) SIL 3 |
| Number of preset speeds | 16 preset speeds |

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| Communication port protocol | Ethernet/IP Modbus serial Modbus TCP |
| Option module | Slot A communication module Profibus DP V1 Slot A communication module Profinet Slot A communication module DeviceNet Slot A communication module EtherCAT Slot A communication module CANopen daisy chain RJ45 Slot A communication module CANopen SUB-D 9 Slot A communication module CANopen screw terminals Slot A/slot B/slot C digital and analog I/O extension module Slot A/slot B/slot C output relay extension module Slot B 5/12 V digital encoder interface module Slot B analog encoder interface module Slot B resolver encoder interface module Communication module Ethernet Powerlink |

Complementary

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| Output voltage | <= power supply voltage |
| Motor slip compensation | Not available in permanent magnet motor law Automatic whatever the load Adjustable Can be suppressed |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.01...9999 s |
| Braking to standstill | By DC injection |
| Protection type | Thermal protection motor Safe torque off motor Motor phase break motor Thermal protection drive Safe torque off drive Overheating drive Overcurrent between output phases and earth drive Overload of output voltage drive Short-circuit protection drive Motor phase break drive Overvoltages on the DC bus drive Line supply overvoltage drive Line supply undervoltage drive Line supply phase loss drive Overspeed drive Break on the control circuit drive |
| Frequency resolution | Display unit 0.1 Hz Analog input 0.012/50 Hz |
| Electrical connection | Control screw terminal 0.5...1.5 mm ² AWG 20...AWG 16 Line side screw terminal 2 x 50...3 x 120 mm ² AWG 1/0...300 kcmil Motor screw terminal 2 x 50...3 x 120 mm ² AWG 1/0...300 kcmil DC bus screw terminal 2 x 50...3 x 120 mm ² AWG 1/0...300 kcmil |
| Connector type | 2 RJ45 Ethernet IP/Modbus TCP on the control block 1 RJ45 Modbus serial on the control block |
| Physical interface | 2-wire RS 485 Modbus serial |
| Transmission frame | RTU Modbus serial |
| Transmission rate | 10/100 Mbit/s Ethernet IP/Modbus TCP 4.8, 9.6, 19.2, 38.4 kbit/s Modbus serial |
| Exchange mode | Half duplex, full duplex, autonegotiation Ethernet IP/Modbus TCP |
| Data format | 8 bits, configurable odd, even or no parity Modbus serial |
| Type of polarization | No impedance Modbus serial |
| Number of addresses | 1...247 Modbus serial |
| Method of access | Slave Modbus TCP |
| Supply | External supply for digital inputs 24 V DC 19...30 V), <1.25 mA overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection Internal supply for digital inputs and STO 24 V DC 21...27 V), <200 mA overload and short-circuit protection |
| Local signalling | Local diagnostic 3 LED mono/dual colour) Embedded communication status 5 LED dual colour) Communication module status 2 LED dual colour) Presence of voltage 1 LED red) |

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| Width | 12.60 in (320 mm) |
| Height | 33.54 in (852 mm) |
| Depth | 15.47 in (393 mm) |
| Net weight | 180.78 lb(US) (82 kg) |
| Analogue input number | 3 |
| Analogue input type | AI1, AI2, AI3 software-configurable voltage 0...10 V DC 30 kOhm 12 bits AI1, AI2, AI3 software-configurable current 0...20 mA/4...20 mA 250 Ohm 12 bits |
| Discrete input number | 10 |
| Discrete input type | DI1...DI8 programmable, 24 V DC <= 30 V)3.5 kOhm DI7, DI8 programmable as pulse input 0...30 kHz, 24 V DC <= 30 V) STOA, STOB safe torque off, 24 V DC <= 30 V)> 2.2 kOhm |
| Input compatibility | DI1...DI8 discrete input level 1 PLC EN/IEC 61131-2 DI7, DI8 pulse input level 1 PLC IEC 65A-68 STOA, STOB discrete input level 1 PLC EN/IEC 61131-2 |
| Discrete input logic | Positive logic (source) DI1...DI8), < 5 V, > 11 V Negative logic (sink) DI1...DI8), > 16 V, < 10 V Positive logic (source) DI7, DI8), < 0.6 V, > 2.5 V Positive logic (source) STOA, STOB), < 5 V, > 11 V |
| Analogue output number | 2 |
| Analogue output type | Software-configurable voltage AQ1, AQ2 0...10 V DC 470 Ohm 10 bits Software-configurable current AQ1, AQ2 0...20 mA 500 Ohm 10 bits |
| Discrete output number | 2 |
| Discrete output type | Logic output DQ+ 0...1 kHz <= 30 V DC 100 mA Programmable as pulse output DQ+ 0...30 kHz <= 30 V DC 20 mA Logic output DQ- 0...1 kHz <= 30 V DC 100 mA |
| Sampling duration | 2 Ms +/- 0.5 ms DI1...DI8) - discrete input 5 Ms +/- 1 ms DI7, DI8) - pulse input 1 Ms +/- 1 ms AI1, AI2, AI3) - analog input 5 ms +/- 1 ms AQ1, AQ2) - analog output |
| Accuracy | +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output |
| Linearity error | AI1, AI2, AI3 +/- 0.15 % of maximum value analog input AQ1, AQ2 +/- 0.2 % analog output |
| Maximum switching current | Relay output R1 resistive, cos phi = 1 3 A 250 V AC Relay output R1 resistive, cos phi = 1 3 A 30 V DC Relay output R1 inductive, cos phi = 0.4 7 ms 2 A 250 V AC Relay output R1 inductive, cos phi = 0.4 7 ms 2 A 30 V DC Relay output R2, R3 resistive, cos phi = 1 5 A 250 V AC Relay output R2, R3 resistive, cos phi = 1 5 A 30 V DC Relay output R2, R3 inductive, cos phi = 0.4 7 ms 2 A 250 V AC Relay output R2, R3 inductive, cos phi = 0.4 7 ms 2 A 30 V DC |
| Relay output number | 3 |
| Relay output type | Configurable relay logic R1 fault relay NO/NC 100000 cycles Configurable relay logic R2 sequence relay NO 1000000 cycles Configurable relay logic R3 sequence relay NO 1000000 cycles |
| Refresh time | Relay output R1, R2, R3)5 ms +/- 0.5 ms) |
| Minimum switching current | Relay output R1, R2, R3 5 mA 24 V DC |
| Isolation | Between power and control terminals |
| Variable speed drive application selection | Mixer Food and beverage processing Conveyor Food and beverage processing Shredder Food and beverage processing Process crane Hoisting Thruster Marine Winch Marine Press Material working (wood, ceramic, stone, pvc, metal) Extruder Material working (wood, ceramic, stone, pvc, metal) Other application Mining mineral and metal Drilling rig Oil and gas Progressive cavity pump Oil and gas Rod pump Oil and gas Swapping pump Oil and gas Compressor for regasification Oil and gas Separator Oil and gas Other application Oil and gas Separator Water and waste water |
| Power range | 110...220 KW 380...440 V 3 phase 110...220 kW 480...500 V 3 phase |

Environment

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| Insulation resistance | > 1 MOhm 500 V DC for 1 minute to earth |
| Noise level | 69.9 dB 86/188/EEC |
| Power dissipation in W | Forced convection 2511 W 380 V 2.5 kHz Natural convection 309 W 380 V 2.5 kHz |
| Vibration resistance | 1.5 mm peak to peak 2...13 Hz)IEC 60068-2-6 1 gn 13...200 Hz)IEC 60068-2-6 |
| Shock resistance | 15 gn 11 ms IEC 60068-2-27 |
| Volume of cooling air | 158506.07 Gal/hr(US) (600 m3/h) |
| Operating position | Vertical +/- 10 degree |
| Maximum THDI | <48 % full load IEC 61000-3-12 |
| Electromagnetic compatibility | Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6 |
| Environmental characteristic | Chemical pollution resistance class 3C3 EN/IEC 60721-3-3 Dust pollution resistance class 3S3 EN/IEC 60721-3-3 |
| Pollution degree | 2 EN/IEC 61800-5-1 |
| Relative humidity | 5...95 % without condensation IEC 60068-2-3 |
| Ambient air temperature for operation | 5...122 °F (-15...50 °C) without) 122...140 °F (50...60 °C) with derating factor) |
| Ambient air temperature for storage | -40...158 °F (-40...70 °C) |
| Operating altitude | <= 3280.84 ft (1000 m) without 1000...4800 m with current derating 1 % per 100 m |
| Standards | UL 508C EN/IEC 61800-3 Environment 1 category C2 EN/IEC 61800-3 Environment 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1 |
| Product certifications | UL CSA TÜV REACH |
| Marking | CE |

Ordering and shipping details

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| Category | 22277 - ATV930 FRAMES 3 & 4 |
| Discount Schedule | CP4E |
| GTIN | 00785901014478 |
| Package weight(Lbs) | 100.24 kg (221 lb(US)) |
| Returnability | Yes |
| Country of origin | IN |

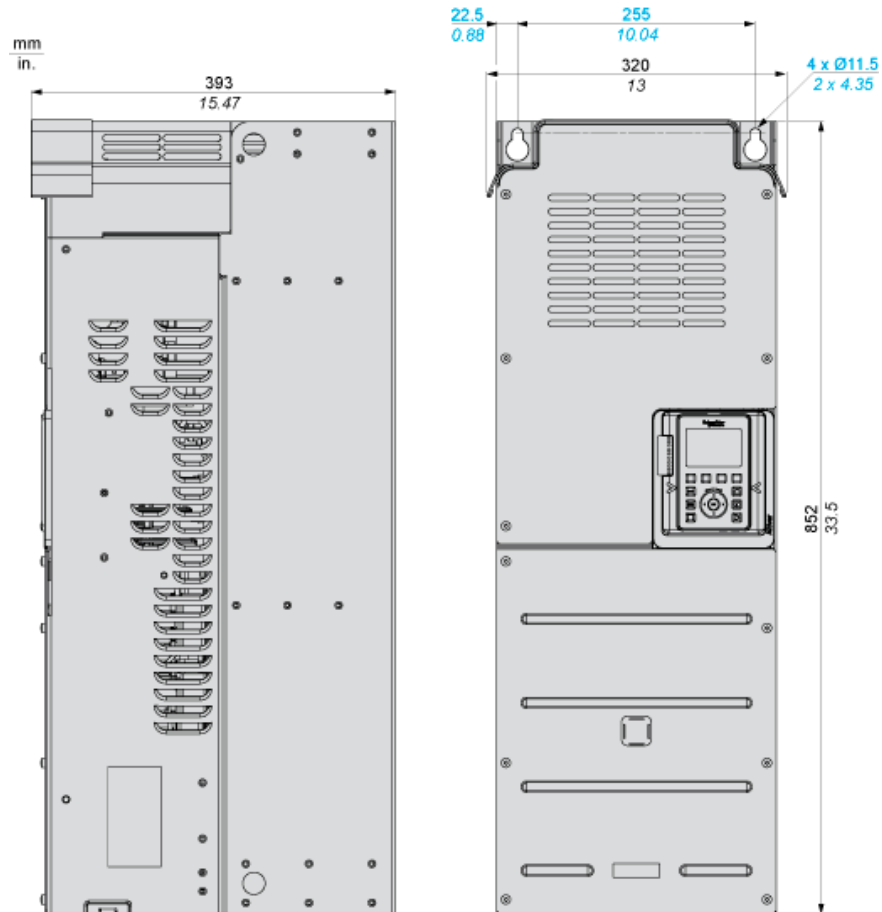
Offer Sustainability

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| Sustainable offer status | Green Premium product |
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds which is known to the State of California to cause Carcinogen & Reproductive harm. For more information go to www.p65warnings.ca.gov |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| RoHS exemption information | Yes |
| China RoHS Regulation | China RoHS Declaration |

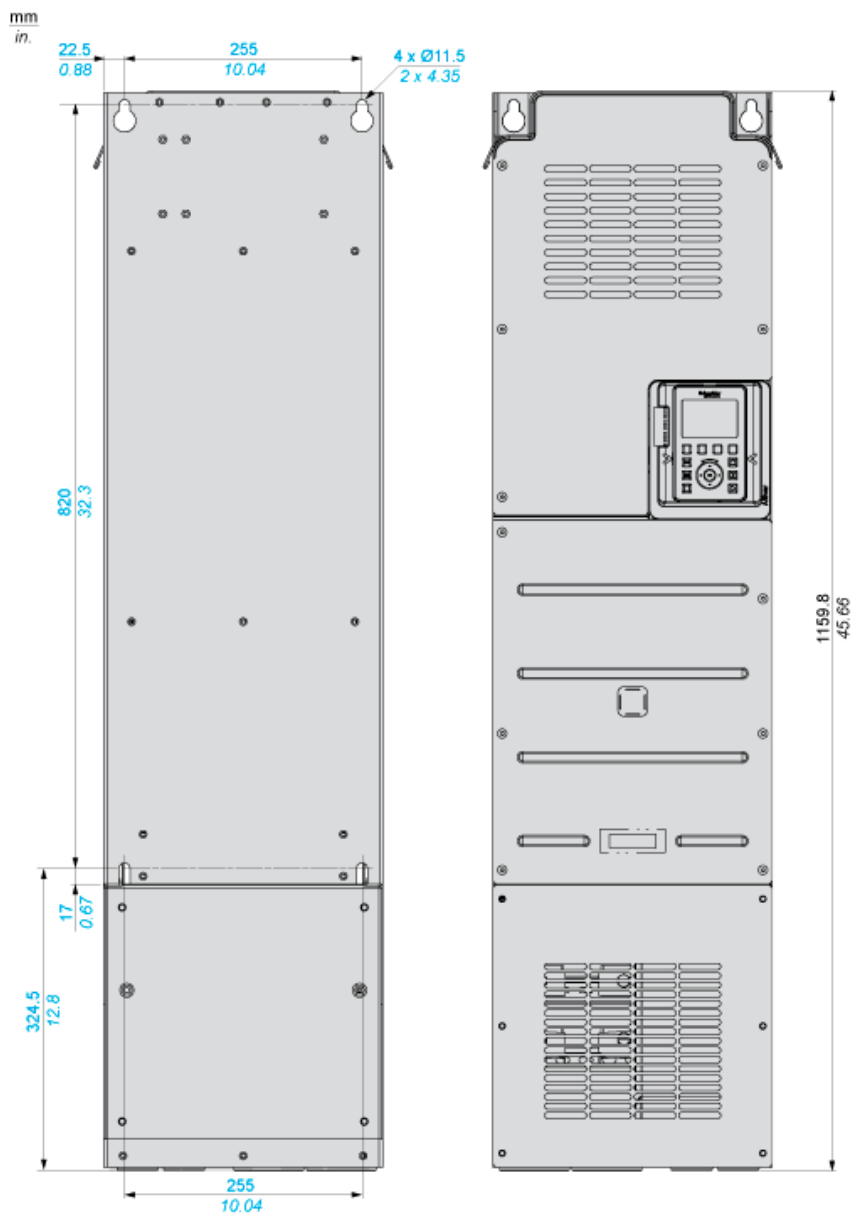
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| Environmental Disclosure | Product Environmental Profile |
| Circularity Profile | End Of Life Information |
| WEEE | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins. |

Dimensions

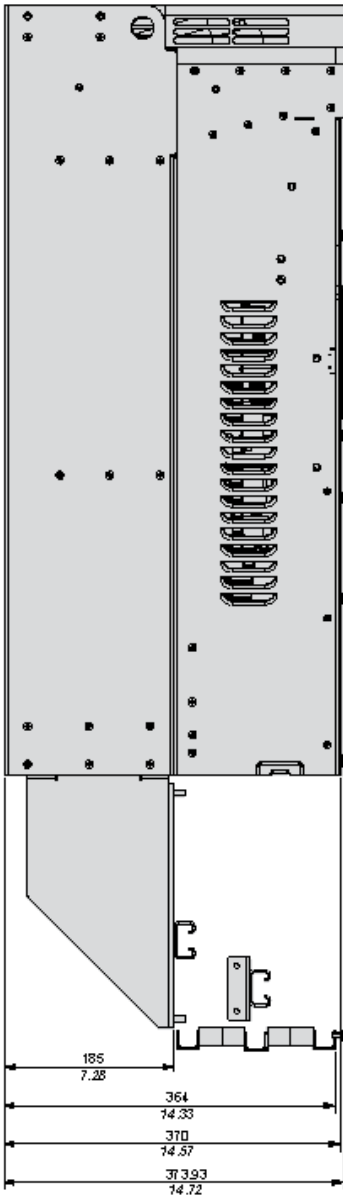
IP21 On Top and IP00 on Bottom Drives - Right Side and Front View



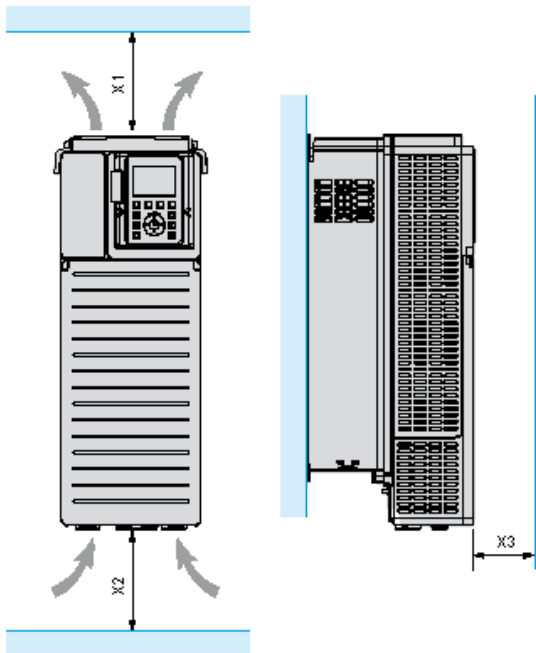
IP21 on Top and Bottom Drives (with Lower Conduit Box Part Sold Separately) - Rear and Front View



Left Side View



Clearances

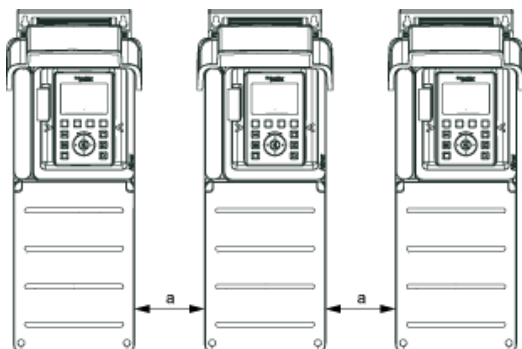


| X1 | X2 | X3 |
|-------------------|-------------------|---------------------|
| ≥ 250 mm (10 in.) | ≥ 250 mm (10 in.) | ≥ 100 mm (3.94 in.) |

- Mount the device in a vertical position ($\pm 10^\circ$). This is required for cooling the device.
- Do not mount the device close to heat sources.
- Leave sufficient free space so that the air required for cooling purposes can circulate from the bottom to the top of the drive.

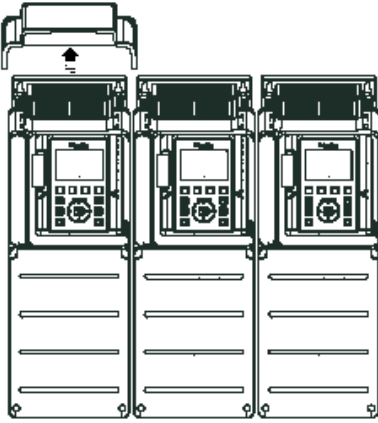
Mounting Types

Mounting Type A: Individual IP21

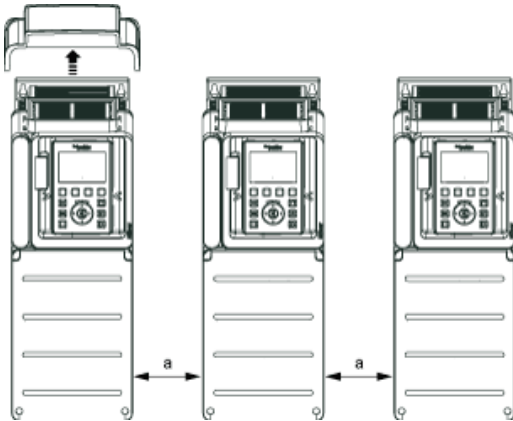


$a \geq 110 \text{ mm (4.33 in.)}$

Mounting Type B: Side by Side IP20 , Only possible at ambient temperature lower than 40 °C (104 °F)



Mounting Type C: Individual IP20



$a \geq 110 \text{ mm (4.33 in.)}$